S0.12 #120
041a

anning a Year-Round Poultry Green Feed rogram for klahoma

UNIVERSITY OF ARIZONA
FEB 1[illegible]
LIBRARY

By Rollin H. Thayer

Circular C-120 January, 1946

OKLAHOMA AGRICULTURAL EXPERIMENT STATION
Oklahoma A. and M. College, Stillwater
W. L. Blizzard, Director Louis E. Hawkins, Vice Direceor

Planning a Year-Round Poultry Green Feed Program For Oklahoma

By

ROLLIN H. THAYER*

THE VALUE OF GREEN FEED

Young, rapidly growing, succulent green plants provide a practical and economical source of vitamins, proteins, and minerals needed by poultry for rapid growth, for the maintenance of health and vigor, for high egg production, and for good fertility and hatchability.

Green feed is an excellent source of carotene (the precursor of Vitamin A) and Vitamin G (riboflavin) and contains appreciable quantities of all other vitamins known to be needed by poultry. The plant proteins, which are of excellent quality, supplement the protein provided by the mash and grain and help to improve the over all protein value of the entire poultry ration. Essential minerals needed for well developed bones, strong egg shells and the smooth, efficient functioning of the various systems in the chicken's body are also supplied in this way.

The efficient use of green feed will make two major contributions to any poultry feeding program.

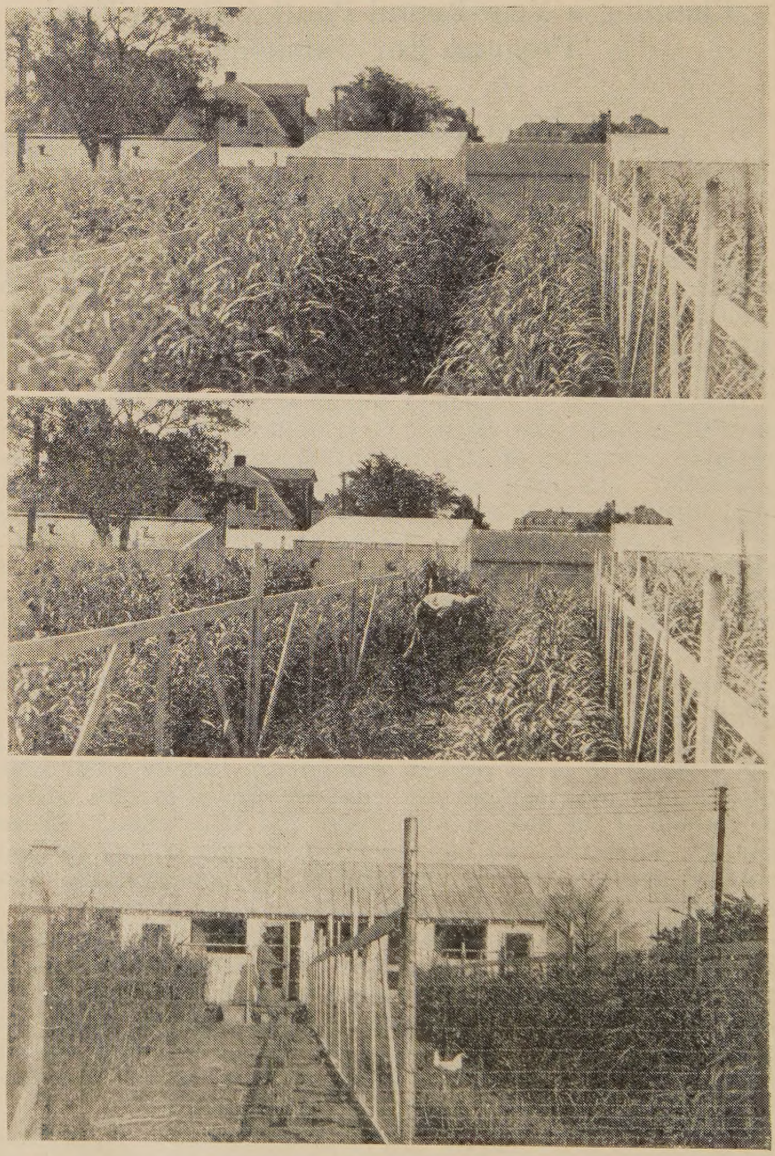
First, the danger of marginal deficiencies in Vitamin A and Vitamin G or in protein quality are largely eliminated. Many times these deficiencies exist because of factors beyond the control of the feed manufacturer and poultryman. Unless they are corrected, the poultryman may take a loss through retarded growth, lowered egg production, poor fertility, poor hatchability or a high mortality rate.

Second, feed consumption may be reduced as much as ten percent. This means a dollar and cents saving in feed costs, and feed costs normally make up more than two-thirds of the entire cost of producing poultry meat and eggs in Oklahoma. By using green feed, the producer will realize a greater margin of profit and in addition be better able to successfully meet the competition of other meat products on the market.

The full benefit of a green feed program cannot be secured unless it is well planned and the plan systematically followed from season to season and from year to year.

---

* Robert Penquite, Poultry Husbandman, conducted the feeding trials and developed the vitamin supplement included herein.



Sudan grass should be planted in the poultry yard in rows 3 feet apart. Alternate rows should be cut back to a length of 4 to 6 inches just before heading occurs. Remaining rows provide shade and green feed while new shoots are being produced by the cut-back rows. If moisture is adequate, sudan grass may be cut back in this way as many as 3 or 4 times during summer and fall months. The fence panels are easily removed.

WHAT TO PLANT

Care should be taken to select crops which are reasonably well adapted to the locality where they are to be grown. Suitable crops for any given area are determined by the type of soil and annual rainfall in that area.

The crops must also be selected on a calendar basis, with an adequate number of crops being available for use during each season of the year. The growing period of one crop should overlap that of the next. Thus as the supply of one crop is being depleted another is being grown to take its place.

The green feed crops for poultry listed in Table I were chosen to include the whole range of Oklahoma growing conditions. Local growing conditions must be considered in making a final selection from this list.

Surplus green plant material from the family garden in the form of lettuce, mustard, cabbage and spinach can be used when available, but these crops should not be depended upon as the main green feed supply.

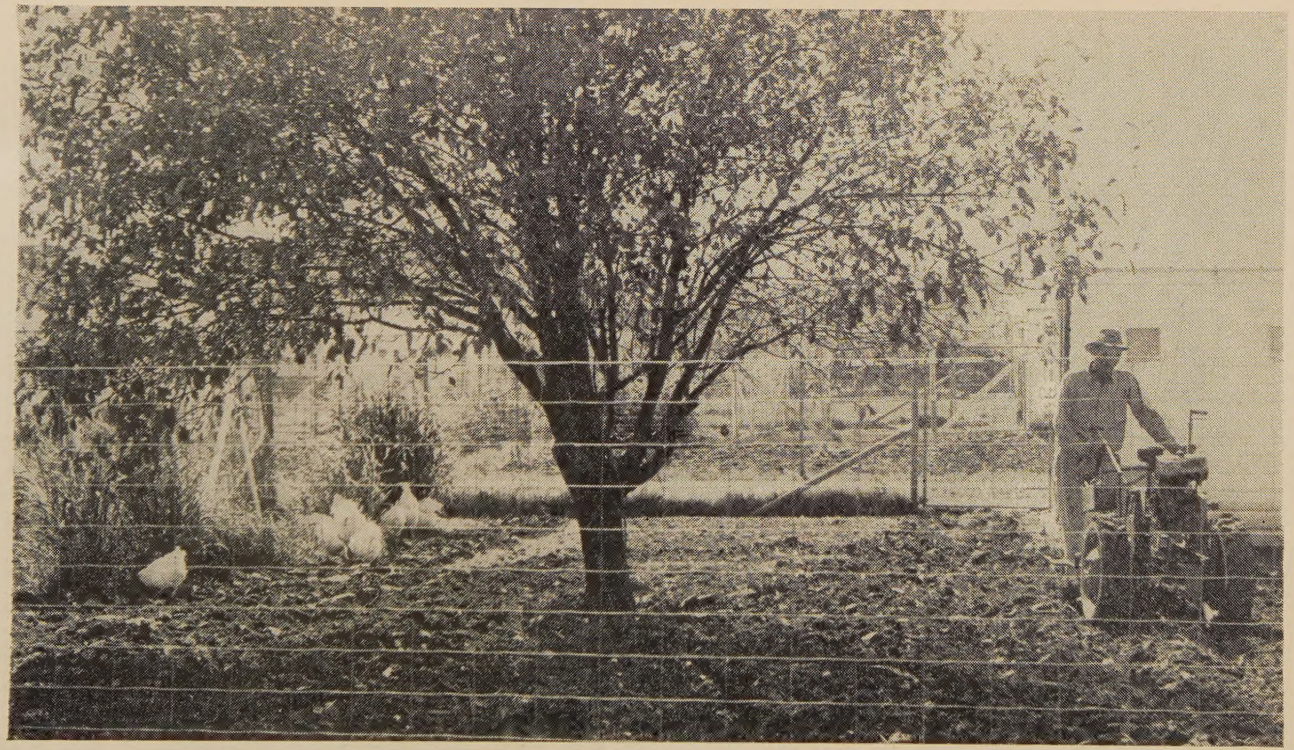
WHEN TO PLANT

A green feed program must be properly planned and the plan faithfully carried out to make green feed available in adequate quantities 365 days a year. Time must be allowed for securing the seed, for preparing the seed beds, for planting the seed, for seed germination and for adequate plant growth prior to the date when the green feed is to be used. This means that after suitable crops have been selected, their planting dates must be determined and a systematic planting calendar worked out so green feed will be ready when needed. The planting dates listed in the systematic planting calendar (Table I) can be used as a guide in working out a planting schedule for use in any given locality.

WHERE TO PLANT

Green feed crops for poultry should be grown in plots or fields outside the poultry yards. These plots or fields are not to be pastured by the chickens. The required amount of green feed is harvested daily, chopped up into ¼ to ½ inch lengths, and fed to the chickens in green feed hoppers or troughs.

Green feed pasture for chickens should be used only as a supplement to the handfed supply. It should not constitute the only source of supply and should not be regarded as the principal source of green plant material.



Cultivate the chicken yards once every 3 or 4 months and reseed them to a suitable pasture crop. Frequent cultivation promotes yard sanitation by aereating the soil and exposing soil borne disease germs and parasites to the destructive action of direct sunlight. Fruit trees in the poultry yard serve the dual purpose of providing shade and producing a fruit crop.

Good poultry management practices should include rotation with a four-chicken-yard-and-home-garden combination yarding system and frequent yard cultivation as a means of promoting yard sanitation. With relatively little additional time and effort these yards can be and should be sowed after each cultivation to a suitable green feed pasture crop. This crop when at the proper stage of maturity will provide a succulent green pasture for chickens. Its usefulness as a green crop for chickens, however, lasts for only a short period of time.

Experience has shown that pastures of this type do not withstand the attack of hens or chicks and are soon depleted. Even when the pasture area is large enough to avoid depletion, the plants close to the hen house are soon eaten down while those further away become tough and stemmy and lose their value as poultry green feed. Within a short time the entire crop is gone or has become unfit for further use. Unless the pasture is being used only as a supplement to the handfed supply, the chickens will be forced to go without needed green feed until the pasture crop can be replaced.

Green feed may be rapidly and efficiently cut for feeding with a lawn mower equipped with a grass catcher. The lawn mower should be set to cut at a height of 2 inches above the ground. The plots in which the green feed is grown must be made reasonably smooth at the time they are seeded if this harvesting method is to be used. Green feed which has been cut in this way is ready for feeding and requires no additional chopping in a green feed chopper.

Attempts to provide a continuous year around supply of tender green pasture for chickens have been found to be impractical. This is true even with the most efficient replanting program because adverse climatic conditions prevent the growth of suitable green pastures during some four or five months each year.

HOW TO PLANT

Recommendations as to the best planting method for each crop as well as the best place to plant it for maximum usefulness are given in Table I. Sudan grass, Swiss chard, and carrots grow best for green feed when they are planted in rows and are cultivated frequently. Sudan grass when broadcast or drilled soon becomes so rank that it is impossible for the chickens to move through it and as a result only the fringes of the plot are available for pasture. Cereal grains, legumes, native grasses, lespedeza, rye grass and vetch should be broadcast or drilled in plots or fields. In small yards or plots where a drill cannot be used, the seed may be broadcast and raked into the soil with a hand rake.

When cereal grains are used either for pasture or for cut green feed it is usually advisable to plant 1½ times to double the quantity of seed normally planted for a grain crop. A mixture of wheat, barley or rye, rye grass and oats is better than any one of these crops alone. The useful life of a mixed green feed crop of this type is about two months longer than when a single cereal grass is used. In the case of the other crops listed in Table I the usual recommendations as to seed quantities should be followed.

When the cereal grains, sudan, alfalfa, clover, lespedeza, rye grass and vetch are to be grown for cut green feed, the seed bed should be divided up into three or four strips or plots. The plots should be harvested in rotation. Under this plan a new succulent green crop is becoming available as another is being used.

HOW MUCH TO PLANT

The amount of each green feed crop which will supply the average daily green feed requirements of a 300 hen unit is given in Table I. For smaller or larger hen units a proportionate decrease or increase in these figures will be necessary. Growing conditions must also be considered since they vary from year to year and from one part of the state to another.

Green feed should be fed to laying hens in a clean trough or hopper and should never be scattered in the litter or upon the ground in the poultry yard. The trough in which the scratch grain is fed is excellent for this purpose. Feed daily the amount of green feed which the hens will clean up in about 60 minutes.

WHEN TO CUT FOR FEEDING

Most plants are suitable for green feed only during their early growth period before stems have developed and leaves have matured and toughened. During this early growth stage, vitamin and protein values are at a maximum. The tender, succulent plant material is relished by poultry and is readily eaten either as cut feed or as pasture.

As plants grow older, the amount of crude fiber in the stems and leaves increase. The entire plant soon becomes tough and woody and loses much of its original vitamin and protein content. After this change has taken place the plant is no longer palatable, chickens refuse to eat it, and its value as a green feed crop is ended.

Crops which have become too old to make satisfactory green feed should be cut or mowed, and the hay used for other purposes. With adequate rainfall a new succulent green growth appears and is soon ready for use.

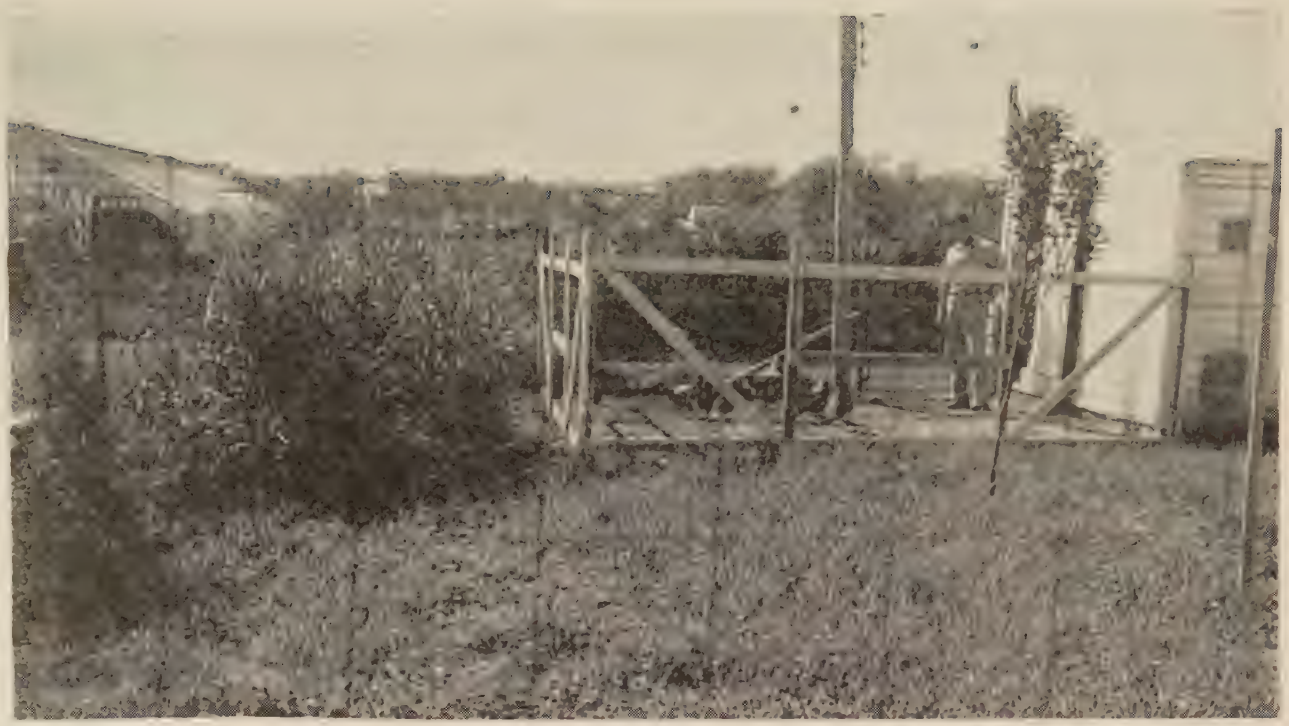
Sudan grass grown in separate fields or plots should be cut back to a length of 4 or 5 inches just before it begins to head in order to stimulate new growth. Cut only alternate rows if the sudan grass is being used as a pasture crop in the chicken yard. The rows which are left are ideal for shade.

Cereal grasses may be mowed several times during the winter and spring to stimulate the growth of succulent green material.

Swiss chard can be kept young and succulent by removing and using the outer leaves.

HOW MUCH TO FEED AND HOW TO FEED IT

One hundred hens will need from 5 to 10 pounds of green feed per day. The daily requirement for 100 growing chicks varies from 1 to 10 pounds, depending upon the age, size and appetite of the chicks. The amount of green feed which a given flock of hens or chicks will consume daily may vary somewhat from these recommendations. It is a good idea, therefore, to feed only the amount of cut green feed that the hens or chicks will clean up in about 60 minutes. This must be determined by observation. By feeding green feed in this way two or three times daily, instead of only once, the amount of cut green feed which a flock of hens will consume can be significantly increased. When succulent green pasture is available in adequate quantities the hens and chicks may secure their daily green feed requirements from this source and daily hand feeding of green feed may be temporarily discon-



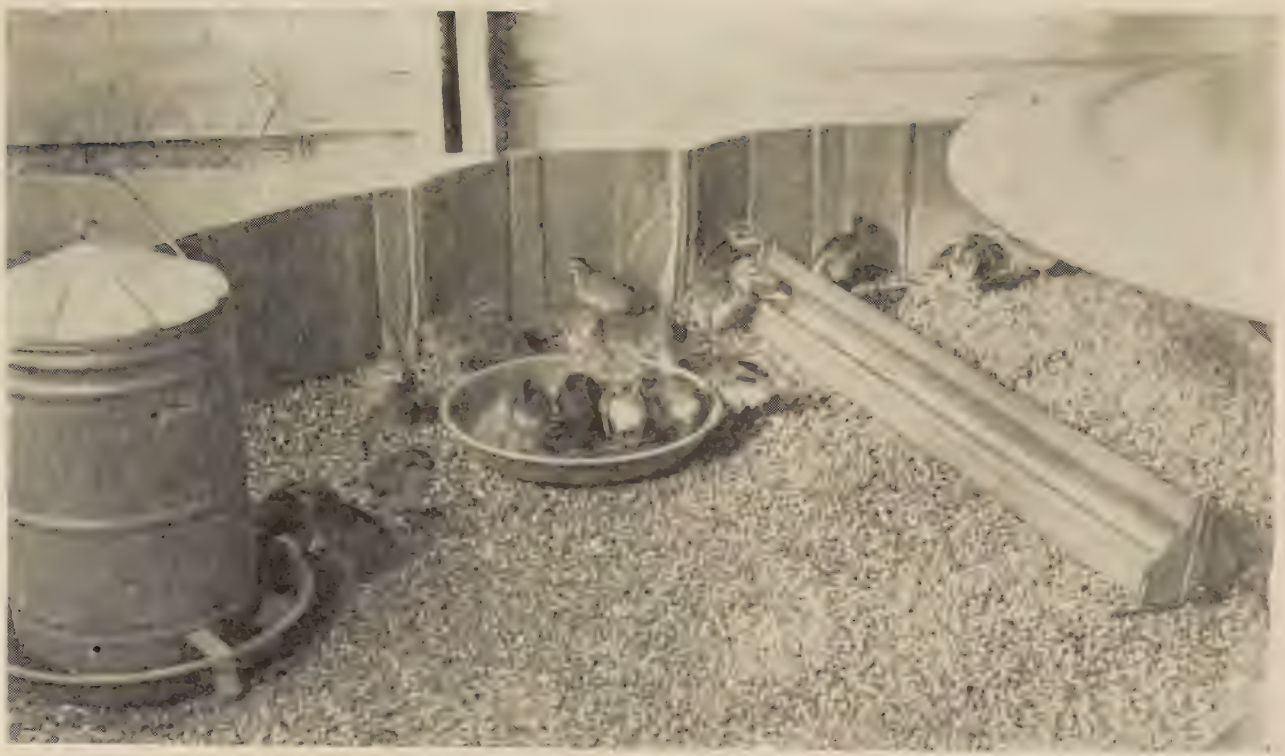
A mixture of wheat, barley, rye, rye grass and oats planted in September or October makes an excellent fall pasture for laying hens. Notice the use of movable panels in fencing the hens away from the green feed while it is yet too immature for pasturing.

tinued. The feeding of cut green feed should be started again as soon as the pasture green feed crop becomes tough and stemmy or is depleted by the foraging of chickens.

The required quantity of green feed should be harvested daily and chopped into ¼ to ½ inch lengths. If a mechanical green feed chopper is not available, a hatchet and a large block of wood or a piece of plank work very well. A green feed chopper may be constructed by bolting a corn knife on one edge of a two-inch plank. A piece of strap iron along the edge of the plank will provide a cutting edge for the corn knife to work against.

The chopped up green feed should be fed in a clean trough or hopper which has been built for that purpose. It should never be thrown into the litter in the hen house or upon the ground in the chicken yard to be picked up by the hens or

Sudan grass and Swiss chard when planted in plots outside the poultry yard provide an adequate source of green succulent plant material during the hot dry summer months. The required amount of green feed is harvested daily, chopped up into ¼ to ½ inch lengths in a green feed chopper and fed to the chicks or hens in a suitable hopper or trough. Notice the rotation system of harvesting the sudan which is being followed here. The sudan in the rows on the extreme left is beginning to head and is ready to be cut back to a length of 4-6 inches. New sprouts are beginning to grow from the cut back plants at the far end of the rows on the right. The sudan grass in the intermediate stages of growth in the foreground is being cut for green feed.



Green feed is relished by baby chicks and should be fed to them after they are two or three days old. The amount of green feed which the chicks will clean up in 60 minutes is fed in a shallow pan or trough. The chicks soon learn to eat the green feed if a small amount is sprinkled on top of the mash each day.

chicks. The consumption of green feed can be greatly increased by feeding twice or even three times daily. Under most conditions, however, once a day is adequate.

Some types of green feed may be harvested with a lawn mower fitted with a grass catcher. The blade of the lawn mower should be set to cut at a height of 2 inches above the ground. This method works very well during the winter with cereal grasses such as oats, barley and wheat. Bermuda grass which is being watered or is growing under ideal soil moisture and fertility conditions can be harvested in this way and makes excellent green feed for chicks or hens. It should not be used, however, if it is tough and stemmy. Rye grass and clovers when planted with the bermuda grass improve its green feed value.

Get the chicks out onto a clean range which is covered with a succulent green crop of rye grass or other suitable green crop when weather conditions will permit. In order to have the pasture crop ready for use when it is needed, planting dates must be worked out and the planting done well ahead of time. A well planned planting calendar such as is given in Table I is a must in any green feed program.

The outer leaves of Swiss chard should be systematically picked and used for green feed. This stimulates the growth of new leaves at the center of the stalk. Swiss chard planted in April will by proper management produce green feed until late fall. It is very resistant to adverse weather conditions and can easily withstand the dry summer weather and the light frosts of early fall.

Sudan grass should be fed in place of Swiss chard during the summer months when the growth of the chard is being retarded by dry weather.

Raw table carrots, Danver's Half Long or Chantenay, should be ground in a household food chopper for feeding. Limit the daily amount to what the hens will clean up in 10 minutes. If this is not done the hens will fill up on carrots and will not eat enough mash. Cooked carrots are palatable to chickens and may be used in place of the raw carrots. During November, December, January, and February, carrots make an excellent substitute for green feed if green plant material is not readily available. Carrots may be grown in spring or fall and left in the ground until needed. This method has proved to be more successful than digging and storing the carrots.

Beets and turnips are very low in nutritive value and are used principally as a source of succulence. They do not contribute any appreciable quantity of Vitamin A to the chicken's diet and should never fully replace green plant material or carrots when such are available.

VITAMIN SUPPLEMENT FOR USE WHEN GREEN FEED IS NOT AVAILABLE

In an emergency when green feed is not available, a Vitamin A concentrate may be used to supply pullets and hens with additional Vitamin A and Vitamin G. This vitamin concentrate consists of a mixture of 15 pounds of good quality dehydrated alfalfa leaf meal (20 percent protein) and 10 pounds of finely ground yellow corn. The addition of one percent (¼ pound) of fish liver oil or Vitamin A and D feeding oil 3000A-400D) when such are available will improve the nutritive value of the concentrate by increasing the Vitamin A and D potency.

One hundred well matured pullets or old hens should be fed one-half pound of this vitamin concentrate at noon each day. The concentrate is fed in the form of a wet mash which is mixed about 30 minutes before feeding time. A half pound

portion of the dry vitamin concentrate and one pint of water or milk are put in a pail and thoroughly mixed together with a wooden paddle. This makes a wet mash which is fed to the hens or pullets by pouring it over the top of the laying mash in the regular mash feeder. When fed in this way the vitamin concentrate is very palatable and a group of 100 hens will eat an entire half pound mix in about 30 minutes.

HOW TO USE DRIED ALFALFA PRODUCED ON THE FARM

Alfalfa meal may be produced on the farm by grinding well cured leafy alfalfa hay in a hammer mill. Alfalfa which is to be used for this purpose should be cut before bloom appears. At that time the stems are tender and a large percentage of leaves are available. It must be cured without sunburn or bleach from rain if full protein and vitamin values are to be maintained. The cured hay may be ground, sacked and stored as meal; or it may be stored as hay and ground in a hammer mill prior to use. Five hundred pounds of well cured green alfalfa meal will be adequate for one hundred hens for one year and for replacement chicks during a 24-week growing period when used as an ingredient in the laying or growing mash.

TABLE I: POULTRY GREEN FEED CALENDAR

Available Green Feed	Planting Date	How to Plant	WHERE AND HOW MUCH TO PLANT FOR A 300-HEN UNIT		How to Use
			Outside Plot or Field	Chicken Yard	

Poultry Green Feed Calendar (Continued)

Available Green Feed	Planting Date	How to Plant	WHERE AND HOW MUCH TO PLANT FOR A 300-HEN UNIT		How to Use
			Outside Plot or Field	Chicken Yard	
		MARCH			
Wheat Barley Rye Oats Rye grass	September 1 to November 1	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Alfalfa Hairy vetch and rye	August 20 to October 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Swiss chard	February 25 to March 10	Rows			
Sudan grass	April 1 to July 1	Rows	One 200-ft. row	Plant in each poultry yard 2 or 3 50-ft. rows 3 feet apart	Cut feed or pasture

2—Clovers for Bermuda, rye grass. clover combinations—same as above.

Poultry Green Feed Calendar (Continued)

Available Green Feed	Planting Date	How to Plant	WHERE AND HOW MUCH TO PLANT FOR A 300-HEN UNIT		How to Use
			Outside Plot or Field	Chicken Yard	
		JUNE			
Swiss chard	February 22 to March 10	Rows	Two 300-ft. rows		Cut feed only
Sudan grass	April 1 to July 1	Rows	One 200-ft. row	Plant in each poultry yard 2 or 3 50-ft. rows 3 feet apart	Cut feed or pasture
Lespedeza or Lespedeza-rye grass-clover	March 1 to April 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Alfalfa	August 20 to October 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
1st year sweet clover	February 20 to April 20	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Bermuda or Bermuda-rye grass-clover combination[2]	April 1 to June 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Rape	May 1 to July 1	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture

2—Clovers for Bermuda Rye Grass, Clover Combinations—same as above.

Poultry Green Feed Calendar (Continued)

Available Green Feed	Planting Date	How to Plant	WHERE AND HOW MUCH TO PLANT FOR A 300-HEN UNIT		How to Use
			Outside Plot or Field	Chicken Yard	
JULY					
Swiss chard	February 22 to March 10	Rows	Two 300-ft. rows		Cut feed only
Sudan grass	April 1 to July 1	Rows	One 200-ft. row	Plant in each poultry yard 2 or 3 50-ft. rows 3 feet apart	Cut feed or pasture
Lespedeza or Lespedeza-rye grass combination	March 1 to April 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Alfalfa	August 20 to October 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Bermuda or Bermuda-rye grass-clover combination[2]	April 1 to June 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Rape	May 1 to July 1	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Small amount of 1st year sweet clover	February 20 to April 20	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture

2—Clovers for Bermuda Rye Grass, Clover Combinations—same as above.

Poultry Green Feed Calendar (Continued)

Available Green Feed	Planting Date	How to Plant	WHERE AND HOW MUCH TO PLANT FOR A 300-HEN UNIT		How to Use
			Outside Plot or Field	Chicken Yard	
AUGUST					
Swiss chard	February 22 to March 10	Rows	Two 300-ft. rows		Cut feed only
Sudan grass	April 1 to July 1	Rows	One 200-ft. row	Plant in each poultry yard 2 3 50-ft. rows 3 feet 3 feet apart	Cut feed or pasture
Alfalfa	August 20 to October 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Lespedeza or Lespedeza-rye grass combination	March 1 to April 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Rape	May 1 to July 1	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
SEPTEMBER					
Swiss chard	February 22 to March 10	Rows	Two 300-ft. rows		Cut feed only
Sudan grass	April 1 to July 1	Rows	One 200-ft. row	Plant in each poultry yard 2 or or 3 50 ft. rows apart	Cut feed or pasture

Poultry Green Feed Calendar (Continued)

Available Green Feed	Planting Date	How to Plant	WHERE AND HOW MUCH TO PLANT FOR A 300-HEN UNIT		How to Use
			Outside Plot of Field	Chicken Yard	
		SEPTEMBER (continued)			
Alfalfa	August 20 to October 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Lespedeza or Lespedeza-rye grass combination	March 1 to April 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Rape	July 20 to September 1	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
1st year sweet clover	February 20 to April 20	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
		OCTOBER			
Swiss chard	February 22 to March 10	Rows	Two 300-ft. rows		Cut feed only
Sudan grass	April 1 to July 1	Rows	One 200-ft. row	Plant in each poultry yard 2 or 3 50-ft. rows 3 feet apart	Cut feed or pasture
1st year sweet clover	February 20 to April 20	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture

Poultry Green Feed Calendar (Continued)

Available Green Feed	Planting Date	How to Plant	WHERE AND HOW MUCH TO PLANT FOR A 300-HEN UNIT		How to Use
			Outside Plot or Field	Chicken Yard	
		OCTOBER (continued)			
Alfalfa	August 20 to October 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Rape	July 20 to September 1	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Small amount of Wheat Oats Rye Barley	September 1 to November 1	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Hairy vetch and rye	August 20 to October 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Tame winter grasses and clovers[1]	August 20 to October 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
		NOVEMBER			
Swiss chard	February 22 to March 10	Rows	Two 300-ft. rows		Cut feed only
Wheat Rye Oats Barley Rye grass	September 1 to November 1	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture

1—Tame Winter Grasses—Kentucky Blue Grass, Red Top, Orchard Grass, Timothy and Brome Grass.
Clovers—Little Hop, Bur, Alsike, Black Medic and White Dutch.

Poultry Green Feed Calendar (Continued)

Available Green Feed	How to Plant	Planting Date	WHERE AND HOW TO PLANT FOR A 300-HEN UNIT		How to Use
			Outside Plot or Field	Chicken Yard	
NOVEMBER (continued)					
Tame winter grasses and clovers[1] Alfalfa	August 20 to October 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Rape	July 20 to September 1	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Carrots	February 22 to March 10 July 15 to August 1	Rows	One 200-ft. row		Cut feed
DECEMBER					
Wheat Rye Oats Barley Rye grass	September 1 to November 1	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Alfalfa and Alfalfa hay Hairy vetch and rye Tame winter grasses and clovers[1]	August 20 to October 15	Drill or Broadcast	¼ to ½ acre divided into plots or strips	¾ to 1 acre divided into suitable yards	Cut feed or pasture
Carrots	February 22 to March 10 or July 15 to August 1	Rows	One 200-ft. row		Cut feed

1—Tame Winter Grasses—Kentucky Blue Grass, Red Top, Orchard Grass, Timothy and Brome Grass.
Clovers—Little Hop, Bur, Alsike, Black Medic and White Dutch.